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### STUDIES IN STELIS. III.

BY

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THREE NEW SPECIES of *Stelis* are described and illustrated in this paper. Two of these species belong to the section of the genus that is characterized by stigmatiferous lateral lobes at the apex of the column. The third species, *Stelis latipetala*, belongs to that section in which the species have the stigmas confluent on the anterior surface of the column beneath the triangular rostellum.

#### ***Stelis crystallina* Ames sp. nov.**

Caules secundarii dense caespitosi, erecti vel adscendentes, monophylli, vaginis tubularibus vestiti. Folium anguste oblongum, utrinque attenuatum, apice tridenticulatum. Racemus gracilis, folium excedens, multiflorus. Bractee racemi infundibuliformes, acutae. Sepala valde convexa, elliptica, obtusa, trinervia, intus dense glandulosa, glandulis crystallinis obtecta. Petala suborbicularia, uninervia, apice vix incrassata. Labellum a latere visum semiglobosum, in circuitu orbiculare, valde incrassatum, apice denticulatum, basi callosum. Discus leviter furcato-carinatus, supra medium excavatus. Columna carnosae, petala aequans, antice utrinque lobo carnosae obtuso stigmatifero instructa, rostello late triangulo.

Leaf-bearing stems densely caespitose, up to 5 cm. long, unifoliate, clothed with several closely appressed tubular sheaths, the uppermost one 2.5 cm. long, 3 mm.

## EXPLANATION OF ILLUSTRATION

STELIS CRYSTALLINA *Ames*. Plant natural size. 1, flower enlarged about nine times. 2, labellum, petals and column much enlarged, anther removed to reveal the stigmatiferous lobes of the column separated by the triangular rostellum. 3, labellum, much enlarged, side-view. 4, petal, labellum and column showing anther *in situ* with the stigmatiferous lobes extending on either side. 5, petal much enlarged. 6, a part of the raceme, slightly enlarged.

*Drawn with the aid of the camera lucida, the analytical details having been drawn from material preserved in alcohol, by* BLANCHE AMES.



STELIS  
*crystallina*  
 Ames



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in diameter in dried specimens. Leaf about 12 cm. long, 1-1.7 cm. wide, oblong, tapering gradually from about the middle to the tridenticulate tip and to the slender petiole-like base, mid-nerve prominent beneath. Peduncle slender, up to 9 cm. long below the raceme, bearing several closely appressed tubular sheathing bracts and terminating in a slender many-flowered raceme. Raceme exceeding the leaves, about 12 cm. long. Bracts of the raceme infundibuliform, about 2 mm. long to the acute apex, about 3 mm. apart. Sepals fleshy, elliptical, obtuse, 3-nerved, about 3 mm. long, 2 mm. wide, strongly convex, densely covered on the inner surface with erect crystalline glands, united at base forming a shallow cup which is about 1 mm. deep, the lateral sepals somewhat larger than the dorsal sepal. Petals about 1 mm. long, about 1 mm. wide, suborbicular, slightly concave, hardly thickened at the apex, 1-nerved, usually equalling the column. Labellum about 1 mm. long, suborbicular, fleshy, semi-globose when viewed from the side, with the anterior margin minutely denticulate, the terminal tooth larger than the others and sharply deflexed; disc with a basal posteriorly glandulose rounded more or less porrect callus, thickened in front of the basal callus laterally to form a pair of carinae which extend almost to the apex of the labellum bounding a well-marked depression. Column about 1 mm. long, conspicuously trilobed at the dilated summit with the posterior lobe triangular-obtuse and sharply inflexed, and with the lateral lobes stigmatiferous, rounded and divaricate; rostellum broadly triangular, deflexed. Pollinia two, narrowly pyriform.

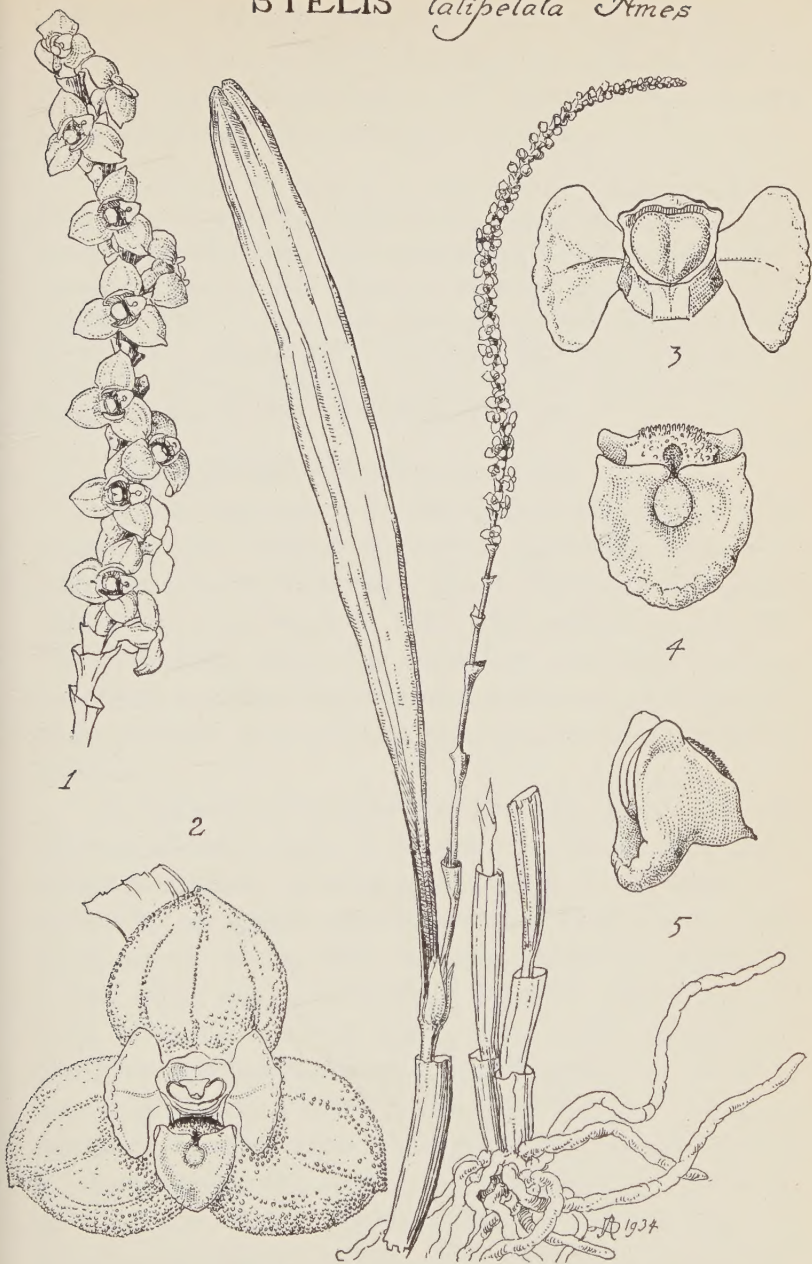
There are two sets of specimens of this species made by C. H. Lankester in 1925. No. 1010 from La Estrella de Cartago is characterized by having the petals orbicular and about equal to the column in length. No. 1051 from Cachi is characterized by elliptical-oblong petals that are

### EXPLANATION OF ILLUSTRATION

STELIS LATIPETALA *Ames*. Plant natural size. 1, a part of the raceme much enlarged. 2, flower enlarged about sixteen times. 3, petals and column with the anther *in situ*, much enlarged. 4 & 5, labellum much enlarged. The circular area which appears to be a hole is made up of the paler tissues characteristic of the basal callus.

*Drawn from dried specimens with the aid of the camera lucida by* BLANCHE AMES

STELIS *latipetala* Ames







conspicuously longer than the column. Except for this difference the specimens of the two sets are similar and surely represent variants of a single species. A third set of specimens collected by A. M. Brenes at San Ramon agrees in detail with Lankester's 1010.

COSTA RICA, La Estrella de Cartago. At 6,000 feet altitude. Flowers up to fifty; sepals frontally pale buffy vinaceous, white-hairy, externally flushed with dusky purple on the central vein and near the margin; petals, lip and column pale oil-green. July 24, 1925. *C. H. Lankester 1010* (TYPE in Herb. Ames No. 31194): Cachi. At 4,000 feet altitude. Flowers buffy. September 27, 1925. *C. H. Lankester 1051*: San Ramon. Epiphyte, 1.5–2.5 dm. tall. At 975 meters altitude. October 10, 1922. *A. M. Brenes (28) 323*.

### **Stelis latipetala** *Ames sp. nov.*

Herba epiphytica. Caules monophylli, vaginis tubularibus vestiti. Folium coriaceum, ligulatum, apice bilobulatum. Racemi multiflori, erecti. Flores pusilli. Sepala orbiculari-ovata, trinervia, intus glanduloso-papillosa. Petala flabellata, uninervia. Labellum infra medium constrictum, superne plus minusve cordatum, callo glanduloso-papilloso prope basim instructum. Columna apice dilatata.

Epiphytic herb up to 2.1 dm. tall. Roots coarsely fibrous, about 2 mm. in diameter, whitish. Secondary stems caespitose, monophyllous, up to 7 cm. long, concealed by elongated tubular sheaths. Leaf 10–13.5 cm. long, up to 1 cm. wide in dried specimens (probably wider when alive), coriaceous, ligulate, bilobed at the apex. Peduncles 1 or 2, erect, with several infundibuliform bracts below the raceme, including the raceme 13–15 cm. long. Raceme about 7 cm. long, less than 3 mm. in diameter, bearing about seventy flowers. Sepals forming a tubular base; the lateral sepals about 1.5 mm. long, up to 2 mm. wide, orbicular-ovate, 3-nerved, minutely glandular-papillose on the inner surface. Dorsal sepal

similar. Petals 1 mm. long, 1.5 mm. wide, flabelliform, thickened at the broad apex along the margin, 1-nerved. Labellum 1 mm. long, 1 mm. wide, constricted below the middle, cordate, obtuse at the apex, with a pulvinate glandular-papillose callus below the middle. Column equalling the petals, lightly 3-lobed at the tip or almost entire, stigmas confluent on the anterior surface near the summit beneath the triangular rostellum. Pollinia two.

In the broad petals and in the structure of the column *Stelis latipetala* is closely allied to *S. crescenticola* Schltr. but is much larger in all of its parts.

If the labellum is viewed directly from above, two rounded calli are discovered, one on each side of the disc, with their apices retrorse or convergent and almost contiguous. These calli are coalescent with the glandulose basal callus from which they are clearly differentiated by their deeper color. The basal callus becomes abruptly narrowed at its distal end and fills the space between the lateral calli forming with them a more or less well-defined transverse septum. This remarkable peculiarity characterizes several other species of the genus, but is by no means prevalent. That it is associated with the phenomena of pollination by insects seems highly probable. When this peculiarity is represented in a drawing there appears to be a circular hole at the centre of the disc, almost closed at the top. This is well shown in figure 4.

COSTA RICA, Cachi. Flowers maroon, seventy or more in each raceme. September, 1925. *C.H. Lankester 1101* (TYPE in Herb. Ames No. 31109).

### **Stelis Storkii** *Ames sp. nov.*

Radices fibratae, albiae, glabrae. Caules secundarii dense caespitosi, vaginis amplis obtecti, monophylli. Folia oblanceolata, bene marginata, coriacea, apice breviter apiculata, infra medium in petiolum sulcatum gracilem

angustata. Pedunculi filiformes, infra racemum paucibracteati. Racemi plus minusve novemflori, folium superantes. Bracteae inflorescentiae infundibuliformes. Sepala lateralialia orbiculari-ovata, marginata, plus minusve carnosa, glabra, leviter concava. Sepalum dorsale simile. Petala cuneato-flabellata, leviter concava, apice leviter incrassata, per medium uninervia. Labellum cuneato-orbiculare, breviter unguiculatum, per medium callo ornatum. Columna brevis, apice trilobata, rostello linguiformi instructa.

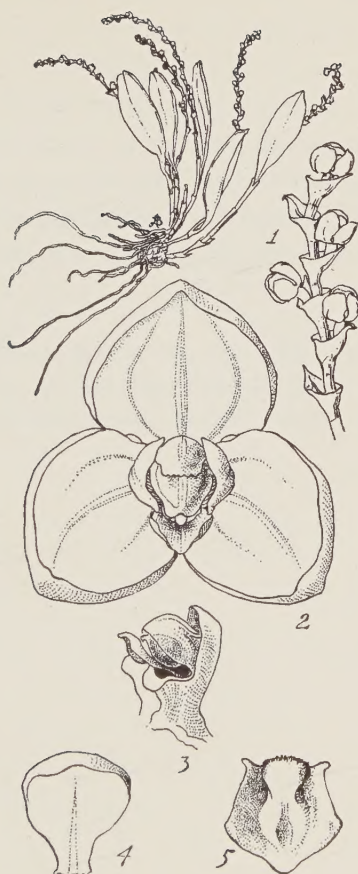
A diminutive epiphyte with fibrous, whitish, smooth, spreading roots. Secondary stems monophyllous, densely caespitose, 1–1.5 cm. long, clothed with three or more elongated tubular sheaths of which the uppermost extends nearly to the axil of the leaf. Leaf 1–2 cm. long, 3–5 mm. wide, oblanceolate with a short apiculate apex, very fleshy, lightly triquetrous, narrowed from about the middle into a slender sulcate petiole. Peduncles one or two in the axil of the leaf, up to 3 cm. long including the raceme, emerging from a scarious conduplicate sheath, bearing about two tubular bracts below the lowermost flower. Raceme 1.5–2 cm. long, loosely flowered. Bracts of the raceme about 2 mm. apart, infundibuliform, 0.5 mm. long. Flowers smooth, yellowish. Lateral sepals 1 mm. long, about 1 mm. wide, orbicular-ovate, obtuse, rather fleshy, 1–3 nerved, with a keel on the mid-nerve on the outer surface. Dorsal sepal similar, usually 3-nerved. Petals about 0.75 mm. long, cuneate-flabellate, slightly concave, thickened toward the tip, 1-nerved. Labellum about 0.75 mm. long, 0.75 mm. wide, cuneate-orbicular or pentagonal, minutely auriculate at base, with a raised callus extending from the base beyond the centre of the disc. Column scarcely 1 mm. long, 3-lobed at the summit with the posterior lobe erect, rounded at the tip or paucidenticate, in length equal to or longer than the

### EXPLANATION OF ILLUSTRATION

STELIS STORKII *Ames*. Plant drawn natural size. 1, part of the raceme several times enlarged. 2, flower enlarged about 25 times. 3, column, much enlarged, showing stigmatiferous lobes, anther *in situ*, rostellum and posterior lobe. 4, petal enlarged about 17 times. 5, labellum enlarged about 15 times.

*Drawn with the aid of the camera lucida from specimens preserved in alcohol by* BLANCHE AMES





STELIS *Storkii* Ames



shaft of the column; stigmatiferous lobes porrect, deflexed, much reduced; rostellum linguiform, obtuse, longer than or equalling the stigmatiferous lobes. Pollinia two.

*Stelis Storkii* is closely allied to *S. tenuissima* Schltr., but differs from that species in habit and in the structure of the column. The sepaline nerves are variable in number. Usually there are three nerves in the dorsal sepal while only two occur in the lateral sepals. The callus is conspicuously raised above the floor of the disc and somewhat pandurate in outline; at the distal end it is bilobed or sulcate where it slopes obliquely toward the apex of the labellum.

COSTA RICA, Santa Maria. May 15, 1928. *H.E.Stork 2103* (TYPE in Herb. Ames No. 40701): San Cristobal Road. At 8,000 feet altitude. Flowers yellowish green. May 27, 1928. *H.E.Stork 2226*.

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